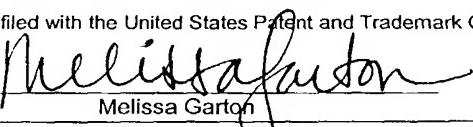
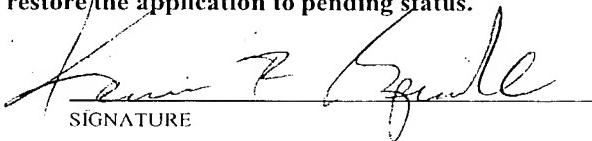


dc-30-1666 FORM PTO-1390 TRADEMARK OFFICE (REV. 11-2000)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 449122026100
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. § 371		U.S. APPLICATION NO. (If known, see 37 CFR 1.5)		10/089318 Not yet assigned
INTERNATIONAL APPLICATION NO. PCT/DE00/03328	INTERNATIONAL FILING DATE September 25, 2000	PRIORITY DATE CLAIMED September 29, 1999		
TITLE OF INVENTION METHOD AND DEVICE FOR SWITCHING A CONNECTION IN A COMMUNICATION NETWORK				
APPLICANT(S) FOR DO/EO/US Franz EGGER et al.				
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:				
<p>1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.</p> <p>4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ul style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input checked="" type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). </p> <p>6. <input checked="" type="checkbox"/> An English language translation of the International Application under PCT Article 19 (35 U.S.C. 371(c)(2)). <ul style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). </p> <p>7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)). <ul style="list-style-type: none"> a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. </p> <p>8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</p> <p>9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p>				
Items 11. to 16. below concern document(s) or information included:				
<p>11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</p> <p>13. <input checked="" type="checkbox"/> A FIRST preliminary amendment.</p> <p>14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</p> <p>15. <input checked="" type="checkbox"/> A substitute specification.</p> <p>16. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.</p> <p>18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4).</p> <p>19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).</p> <p>20. <input checked="" type="checkbox"/> Other items: 1) Application Data Sheet; 2) Int'l Search Report; 3) IPER; 4) Return receipt postcard.</p>				
CERTIFICATE OF HAND DELIVERY				
hereby certify that this correspondence is being hand filed with the United States Patent and Trademark Office in Washington, D.C. on March 29, 2002.				
 Melissa Garton				

Rec'd PCT/PTO 29 MAR 2002

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY DOCKET NO.
Not yet assigned 10/089318	PCT/DE00/03328	449122026100
<p>21. <input checked="" type="checkbox"/> The following fees are submitted:</p> <p>BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):</p> <p>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO.....\$1,040.00</p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.....\$890.00</p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$740.00</p> <p>International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provision of PCT Article 33(1)-(4)\$710.00</p> <p>International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)\$100.00</p>		
ENTER APPROPRIATE BASIC FEE AMOUNT = \$890.00		
<p>Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).</p>		
CLAIMS	NUMBER FILED	NUMBER EXTRA
Total claims	- 20 =	x \$18.00
Independent claims	- 3 =	x \$84.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)		+ \$280.00
TOTAL OF ABOVE CALCULATIONS = \$890.00		
<p><input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by $\frac{1}{2}$.</p>		
SUBTOTAL = \$890.00		
<p>Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).</p>		
TOTAL NATIONAL FEE = \$890.00		
<p>Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property</p>		
TOTAL FEES ENCLOSED = \$890.00		
		Amount to be refunded:
		charged:
a. <input checked="" type="checkbox"/>	Please charge my Deposit Account No. 03-1952 (referencing Docket No. 449122026100) in the amount of \$890.00 to cover the above fees. A duplicate copy of this sheet is enclosed.	
b. <input checked="" type="checkbox"/>	The Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment to Deposit Account No. 03-1952 (referencing Docket No. 449122026100).	
<p>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</p>		
<p>SEND ALL CORRESPONDENCE TO:</p> <p>Kevin R. Spivak Morrison & Foerster LLP 2000 Pennsylvania Avenue, N.W. Washington, D.C. 20006-1888</p>		
 <p>SIGNATURE</p> <p>Kevin R. Spivak Registration No. 43,148</p> <p>March 29, 2002</p>		

10/089318
JC15 Rec'd PCT/PTO 29 MAR 2002

CERTIFICATE OF HAND DELIVERY

I hereby certify that this correspondence is being hand filed with the United States Patent and Trademark Office in Washington, D.C. on March 29, 2002.


Melissa Garton

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Franz EGGER et al.

Serial No.: Not yet assigned

Filing Date: March 29, 2002

For: METHOD AND DEVICE FOR
SWITCHING A CONNECTION IN
A COMMUNICATION NETWORK

Examiner: Not yet assigned

Group Art Unit: Not yet assigned

PRELIMINARY AMENDMENT

BOX PCT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination on the merits, please amend this application as follows:

What is claimed is:

1. (Amended) A method for switching a connection between two subscribers of a communication network with a common signaling channel which is independent of information channels and with transit exchanges having at least one switching network and associated line trunk groups, the switching occurring after a request from outside of the communication network, comprising:

connecting two inputs for transmission links at a transit exchange by a data line and allocating at least one pair of information channels;

transmitting a control signal on the common signaling channel such that a connection to a first of the two subscribers is switched through from a first of the information channels allocated to one another, and

a connection is switched through to a second of the two subscribers from a second of the information channels allocated to one another; and

forwarding a terminal signaling of the connection to the first subscriber of the connection to the second subscriber via the common signaling channel, and forwarding a terminal signaling of the connection to the second subscriber of the connection to the first subscriber via the common signaling channel.

2. (Amended) The method as claimed in claim 1, wherein the signaling on the common signaling channel is in accordance with the ITU-T signaling system No. 7.

3. (Amended) The method as claimed in claim 2, wherein the signaling messages of an ISDN User Part are transmitted from the first connection to the second connection and from the second connection to the first connection via the ITU-T signaling system No. 7.

4. (Amended) The method as claimed in claim 1, wherein PCM30 transmission links are used as inputs.

5. (Amended) The method as claimed in claim 1, wherein PCM24 transmission links are used as inputs.

6. (Amended) The method as claimed in claim 1, wherein the control signal is transmitted via an existing controller of the transit exchange.

7. (Amended) The method as claimed in claim 1, wherein a connection after a request from another communication network is initiated by a program installed on a network server which is connected to the other communication network.

8. (Amended) The method as claimed in claim 7, wherein the other communication network is the Internet.

9. (Amended) A device in a transit exchange for switching a connection between two subscribers of a communication network with a common signaling channel which is independent of information channels and with transit exchanges having at least one switching network and associated line trunk groups, the switching occurring after a request from outside of the communication network, comprising:

at least one connection between two inputs for transmission links at the transit exchange by a data line and permanent allocation of at least one pair of information channels; and

a controller connected to the common signaling channel and which conducts on the common signaling channel a control signal having content that a connection is present on one information channel of the information channels allocated to one another, which connection is switched through to a first of the two subscribers, and a connection is present on the second information channel of the information channels allocated to one another, which connection is switched through to a second of the two subscribers, and which forwards the terminal signaling of the connection to the first subscriber to the connection to the second subscriber and from the second subscriber to the first subscriber.

10. (Amended) The device as claimed in claim 9, characterized in that the controller uses the signaling protocol according to the ITU-T signaling system No: 7.

11. (Amended) The device as claimed in claim 10, wherein the controller transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one connection to the other connection.

12. (Amended) The device as claimed in claim 9, wherein the inputs are those for PCM30 transmission links.

13. (Amended) The device as claimed in claim 9, wherein the inputs are those for PCM24 transmission links.

14. (Amended) The device as claimed in claim 9, wherein the controller is an existing controller of the transit exchange.

15. (Amended) The device as claimed in claim 12, wherein the transit exchange is a transit exchange of the EWSD system and the inputs are connected by two accesses for PCM lines in each case being connected at one line trunk group.

16. (Amended) The device as claimed in claim 15, wherein the controller is a group processor of the line trunk group.

17. (Amended) The device as claimed in claim 9, wherein the controller is connected to a network server which is connected to another communication network to initiate the connection by a program on the network server after a request from the other communication network.

18. (Amended) The device as claimed in claim 17, wherein the other communication network is the Internet.

In the Abstract:

Please replace the Abstract with the substitute Abstract attached hereto.

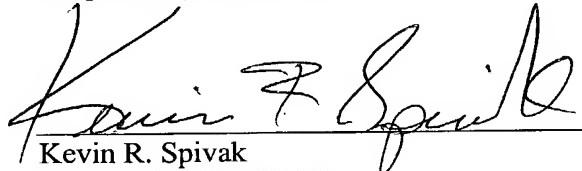
REMARKS

Amendments to the specification have been made and are submitted herewith in the attached Substitute Specification. A clean copy of the specification and a marked-up version showing the changes made are attached herewith. The claims and abstract have been amended in the attached Preliminary Amendment. All amendments have been made to place the application in proper U.S. format and to conform with proper grammatical and idiomatic English. None of the amendments herein are made for reasons related to patentability. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made".

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 449122026100. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,



Kevin R. Spivak
Registration No. 43,148

Dated: March 29, 2002

Morrison & Foerster LLP
2000 Pennsylvania Avenue, N.W.
Washington, D.C. 20006-1888
Telephone: (202) 887-6924
Facsimile: (202) 263-8396

~~CONFIDENTIAL~~

VERSION WITH MARKINGS TO SHOW CHANGES MADE

For the convenience of the Examiner, the changes made are shown below with deleted text in strikethrough and added text in underline.

In the Claims:

Patent claims What is claimed is:

1. (Amended) A method for switching a connection between two subscribers (7, 8) of a communication network with a common signaling channel (6) which is independent of the information channels (5, 5a, 5b) and with transit exchanges (3) consisting of in each case having at least one switching network (1) and associated line trunk groups(2), the switching being effected occurring after a request from outside this of the communication network, comprising: the following steps

a)

connecting two inputs for transmission links at a transit exchange (3) by a data line (12) and permanently allocating at least one pair of information channels(5a, 5b);

b) Transmitting transmitting a control signal on the common signaling channel such(6) which has the following effect:

that a connection to the a first subscriber (7) of the two subscribers is switched through from one information channel (5a) a first of the information channels (5a, 5b) in each case permanently allocated to one another, and

that a connection is switched through to the a second subscriber (8) of the two subscribers from the a second information channel (5b) of the information channels (5a, 5b) permanently allocated to one another; and

c) Forwarding the forwarding a terminal signaling of the connection to the first subscriber to of the connection to the second subscriber via the common signaling channel(6) and conversely, and forwarding a terminal signaling of the connection to the second subscriber of the connection to the first subscriber via the common signaling channel.

2. (Amended) The method as claimed in claim 1, characterized in that wherein the signaling on the common signaling channel (6) is effected in accordance with the ITU-T signaling system No. 7.
3. (Amended) The method as claimed in claim 2, wherein characterized in that the signaling messages of the an ISDN User Part (ISUP) are transmitted from the first connection to the second connection and conversely from the second connection to the first connection via the ITU-T signaling system No. 7.
4. (Amended) The method as claimed in ~~one of claims 1 to 3, characterized in that, as inputs, those for claim 1, wherein~~ PCM30 transmission links are used as inputs.
5. (Amended) The method as claimed in ~~one of claims 1 to 3, characterized in that, as inputs, those for claim 1, wherein~~ PCM24 transmission links are used as inputs.
6. (Amended) The method as claimed in ~~one of claims 1 to 5, characterized in that claim 1, wherein~~ the control signal is transmitted via an existing controller (21) of the transit exchange.
7. (Amended) The method as claimed in ~~one of the preceding claims, characterized in that claim 1, wherein~~ a connection after a request from another communication network is initiated by a program installed on a network server (13) which is connected to ~~this~~ the other communication network.
8. (Amended) The method as claimed in claim 7, characterized in that wherein the other communication network is the Internet.
9. (Amended) A device in a transit exchange (3) for switching a connection between two subscribers (7, 8) of a communication network with a common signaling channel (6) which is independent of the information channels (5, 5a, 5b) and with transit exchanges (3) consisting of ~~in each case~~ having at least one switching network (4) and associated line trunk groups (17), the

switching being effected occurring after a request from outside of the communication network, comprising a):

at least one connection between two inputs for transmission links at the transit exchange by means of a data line (12) and permanent allocation of at least one pair of information channels(5a, 5b); and

b) A controller (10) (CtD controller) which is connected to the common signaling channel (6) and which conducts on the common signaling channel (6) a control signal having the content that a connection is present on one information channel (5a) of the information channels (5a, 5b) in each case permanently allocated to one another, which connection must be is switched through to one subscriber (7), and that a first of the two subscribers, and a connection is present on the second information channel (5b) of the information channels (5a, 5b) permanently allocated to one another, which connection must be is switched through to the a second subscriber (8) of the two subscribers, and which forwards the terminal signaling of the connection to the first subscriber (7) to the connection to the second subscriber (8) and conversely. and from the second subscriber to the first subscriber.

10. (Amended) The device as claimed in claim 9, characterized in that the controller (10) uses the signaling protocol according to the ITU-T signaling system No. 7.

11. (Amended) The device as claimed in claim 10, characterized in that wherein the controller (10) transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one connection to the other one and conversely connection.

12. (Amended) The device as claimed in one of claims 9 to 11, characterized in that claim 9, wherein the inputs are those for PCM30 transmission links.

13. (Amended) The device as claimed in one of claims 9 to 11, characterized in that claim 9, wherein the inputs are those for PCM24 transmission links.

14. (Amended) The device as claimed in ~~one of claims 9 to 13, characterized in that claim 9, wherein~~ the controller (10) (CTD controller) is an existing controller of the transit exchange(3).

15. (Amended) The device as claimed in ~~one of claims 12 to 14, characterized in that claim 12, wherein~~ the transit exchange (3) is a transit exchange (3) of the EWSD system and the inputs are connected by two accesses for PCM lines (22) in each case being connected at one line trunk group(2) (LTG).

16. (Amended) The device as claimed in claim 15, ~~characterized in that wherein~~ the controller (10) (CTD controller) is the ~~is a~~ group processor of the line trunk group(2).

17. (Amended) The device as claimed in ~~one of claims 9 to 16, characterized in that claim 9, wherein~~ the controller (10) is connected to a network server (13) which, ~~in turn,~~ is connected to another communication network ~~in order~~ to initiate the connection by a program on ~~this the~~ network server (13) after a request from the other communication network.

18. (Amended) The device as claimed in claim 17, ~~characterized in that wherein~~ the other communication network is the Internet.

In the Abstract:

Please replace the Abstract with the substitute Abstract attached hereto.

20 4700 876 450 270 200 200 200 200 200

METHOD AND DEVICE FOR SWITCHING A CONNECTION IN A COMMUNICATION NETWORK

Abstract

In a communication network with a common signaling channel which is independent of the information channels, two inputs for transmission links at a transit exchange are connected by a data line. A controller, by means of a control signal on the common signaling channel, causes a connection to be switched through from one input to the first subscriber and from the second input to the second subscriber. The terminal signaling of the connections to the subscribers is transmitted alternately.

METHOD AND DEVICE FOR SWITCHING A CONNECTION IN A
COMMUNICATION NETWORK

CLAIM FOR PRIORITY

- 5 This application claims priority to International Application No. PCT/DE00/03328 which was filed in the German language on September 25, 2000.

TECHNICAL FIELD OF THE INVENTION

- 10 The present invention relates to a method and device for switching a connection between two subscribers of a communication network, and in particular, for switching a connection from an exchange of the communication network using the existing switching functions and
15 signal transmission functions of the communication network.

BACKGROUND OF THE INVENTION

A connection between two subscribers of a communication network can be initiated by the two subscribers being called separately from a special terminal located outside the communication network, using a computer as automatic operator. As soon as a connection exists to both subscribers and the special terminal, the information signals and the control signals for service indicators, if any, are then transmitted by this terminal from one connection to the other and conversely. Such a switching method is used in telephone networks in call centers. The disadvantageous factor is the relatively complex implementation and the necessary capacity for high performance required from the special terminal.

Such switching of a connection in telephone networks is of particular interest for the function of "click to dial" out of the Internet. "Click to dial" is an offer in the Internet in which a user of the Internet is provided with the possibility of setting up a connection directly by instruction between two

subscriber numbers of the telephone network, the telephone numbers of which are input or retrieved from a database. Both lines involved must be dialed for this and connected to one another. In most cases, one
5 subscriber is the Internet user himself.

If this function is implemented similar to the call switching in call centers, a controller operating as terminal of the communication network initiates two
10 connections via the communication network and, as soon as both connections exist, the controller must forwards the information data. That is, the digitized voice or other data to be transmitted, of one connection via the other one and conversely. To maintain the features
15 offered by the communication system used in the communication network, e.g. the service indicators of the ISDN in the telephone network, for both subscribers of the initially different connections, must be transferred from one connection to the second one and adapted, if necessary. This creates considerable expenditure since the computer receives the service indicators like a terminal and forwards them again to the second corresponding connection like a terminal.
20 Additional computing effort is produced by the fact that some data have to be converted and adapted. In the ISDN, for example, it is possible to indicate the telephone number of the other subscriber by means of the CLIP feature. Since there are two connections from the point of view of the communication network, the
25 second call must receive from the controller the indicator of the telephone number of the first call instead of that belonging to the controller, in order to guarantee this feature.

35 It is also desirable to have a capability of integrating the "click to dial" service with the simplest possible means also in existing network nodes in the case where a network operator itself offers this service.

Figure 1 shows in accordance with the prior art the switching of a connection in a communication network by a computer connected to the communication network as terminal which is used as automatic operator 9. The 5 communication network transit exchanges 3 and some access exchanges 4. An exchange center can have both functions and can be both transit exchange 3 and access exchange 4. The transit exchanges are connected to one another by means of transmission links which have at 10 least one information channel 5 and at least one separate signaling channel 6. Figure 1 shows the connection between a first subscriber 7 and a second subscriber 8 by the automatic operator 9. The automatic operator 9 first dials both subscribers 7, 8 in two 15 separate connections via two terminal lines 14. In the example shown, both connections initially take the same path. From the access exchange 4 of the automatic operator 9, they first reach the same transit exchange 3. Depending on the subscriber 7, 8 dialed, the 20 connections can also take separate paths through the communication network after the access exchange 4 to which the automatic operator 9 is connected. In the transit exchange 3, the two connections are switched through completely independently as two different ones. 25 This happens by the information channels 5 and signaling channels 6 being conducted via line trunk groups 2 in the transit exchange 3 and being switched through in a switching network 1 according to the control signals in the signaling channels 6.

30 If the two connections to the first subscriber 7 and second subscriber 8 have been established, the automatic operator 9 connects the two connections.

35

SUMMARY OF THE INVENTION

In one embodiment of the invention, there is a method for switching a connection between two subscribers of a communication network with a common signaling channel which is independent of the

information channels and with transit exchanges having at least one switching occurring network and associated line trunk groups, the switching being effected after a request from outside of the communication network. The method includes, for example, connecting two inputs for transmission links at a transit exchange by a data line and permanently allocating at least one pair of information channels, transmitting a control signal on the common signaling channel such that a connection to the first subscriber is switched through from one information channel of the information channels in each case allocated to one another, and a connection is switched through to the second subscriber from the second information channel of the information channels allocated to one another, and forwarding a terminal signaling of the connection to the first subscriber to the connection to the second subscriber via the common signaling channel, and forwarding a terminal signaling of the connection to the second subscriber to the connection to the first subscriber via the common signaling channel.

In one aspect of the invention, the signaling on the common signaling channel is in accordance with the ITU-T signaling system No. 7..

In another aspect of the invention, the signaling messages of an ISDN User Part (ISUP) are transmitted from the first connection to the second connection and from the second connection to the first connection via the ITU-T signaling system No. 7.

In yet another aspect of the invention, PCM30 transmission links are used as inputs.

In another aspect of the invention, PCM24 transmission links are used as inputs.

In another aspect of the invention, the control signal is transmitted via an existing controller of the transit exchange.

In still another aspect of the invention, a connection after a request from another communication network is initiated by a program installed on a

network server which is connected to the other communication network.

In another aspect of the invention, the other communication network is the Internet.

In another embodiment of the invention, there is a device in a transit exchange for switching a connection between two subscribers of a communication network with a common signaling channel which is independent of the information channels and with transit exchanges having at least one switching network and associated line trunk groups, the switching occurring after a request from outside of the communication network. The device includes, for example, at least one connection between two inputs for transmission links at the transit exchange by a data line and permanent allocation of at least one pair of information channels, a controller connected to the common signaling channel and which conducts on the common signaling channel a control signal having content that a connection is present on one information channel of the information channels in each case allocated to one another, which connection is switched through to one subscriber, and a connection is present on the second information channel of the information channels allocated to one another, which connection is switched through to the second subscriber, and which forwards the terminal signaling of the connection to the first subscriber to the connection to the second subscriber and from the second subscriber to the first subscriber.

In another aspect of the invention, the controller uses the signaling protocol according to the ITU-T signaling system No. 7.

In another aspect of the invention, the controller transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one connection to the other connection.

In yet another aspect of the invention, the inputs are those for PCM30 transmission links.

In another aspect of the invention, the inputs are

those for PCM24 transmission links.

In another aspect of the invention, the controller is an existing controller of the transit exchange.

In still another aspect of the invention, the transit exchange is a transit exchange of the EWSD system and the inputs are connected by two accesses for PCM lines in each case being connected at one line trunk group.

In another aspect of the invention, the controller is a group processor of the line trunk group.

In another aspect of the invention, the controller is connected to a network server which is connected to another communication network to initiate the connection by a program on the network server after a request from the other communication network.

In yet another aspect of the invention, the other communication network is the Internet.

BRIEF DESCRIPTION OF THE DRAWINGS

5 In the text which follows, the invention will be explained with reference to the figures in which:

Figure 1 shows the connection of two subscribers by a third party according to the prior art, by a computer

10 as terminal of the network.

Figure 2 shows the connection between two subscribers by a third party by means of the device according to the invention.

15

Figure 3 shows an embodiment according to the invention of the device in a transit exchange EWSD.

20

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention provides a method and a device by means of which it is possible without elaborate adaptations of the transit exchanges and the modules and facilities used in them to establish a connection between two

subscribers of the network from one point of the network after a request from a third party.

According to one embodiment of the invention, there is
5 a method for switching a connection between two
subscribers in a communication network with a common
signaling channel which is independent of the
information channels and with transit exchanges
including at least one switching network and associated
10 line trunk groups is provided, the switching being
effected after the connection has been requested from a
third party.

Initially, two inputs for transmission links at a
15 transit exchange are connected by a data line. This can
already been done by means of a signal data line. This
also results in a permanent allocation of the
information data channels in pairs, for example the
voice channels in a telephone network. In networks
20 operating with a synchronous digital hierarchy or a
plesiochronous digital hierarchy on the transmission
links or generally in the case of multiplex lines, at
least one information channel of one input is
permanently allocated to an information channel of the
25 other input of the transmission link via the
corresponding timeslot. Naturally, it is also possible,
in an ATM network, to achieve a fixed paired
information channel allocation by means of such a
hardware connection of the inputs of transmission links
30 by utilizing the coding and decoding methods provided
by the network since for each transit exchange a
transmission link, which, in turn, is connected to the
exchange itself, acts in such a manner as if it were
connected to an adjacent transit exchange. Thus, the
35 methods already in existence produce a fixed
information channel allocation since an unambiguous
defined information channel allocation must also exist
between transit exchanges.

- Furthermore, according to still another embodiment of the invention, a control signal is transmitted on the common signaling channel, which has the content that a connection is present on one information channel of the 5 information channels in each case permanently allocated to one another, which connection is switched through to the first subscriber and, at the same time, that a connection is present on the second information channel which must be switched through to the second 10 subscriber. As a result, from the point of view of the communication network, two connections are set up, both of which apparently come from the hardware loop, the connection between the two inputs.
- 15 Finally, the incoming terminal signaling of the connection to the first subscriber in one call are forwarded to the connection to the second subscriber via the common signaling channel and conversely.
- 20 This can be advantageously carried out with relatively little expenditure even at transit exchanges already existing. Since the junction line is not a terminal and thus does not generate its own terminal signaling, the full extent of the features of the protocol used can already 25 be secured between the terminals by a simple forwarding of the terminal signaling. If, for example, the call number of one subscriber is transmitted via the signaling and forwarded to the other connection via the common signaling channel, the desired result is 30 obtained without further translation of the signaling. Transmission of the information data does not require any expenditure since the transit exchange in the method according to the invention sees itself as an apparent adjacent transit exchange and, as a result, 35 ensures synchronization of the information channels and transmission of the information data by means of the preexisting methods and devices.

In one aspect of the invention, the ITU-T signaling

system No. 7 is advantageously used for the signaling on the common signaling channel.

- In another aspect of the invention, the signaling
5 messages of the ISDN User Part (ISUP) are advantageously transmitted from the first connection to the second connection and conversely via the ITU-T signaling system No. 7.
- 10 The control signals are preferably generated by an existing controller of the transit exchange and forwarded to the common signaling channel. As a result, the method described can be applied with little expenditure by a corresponding program without needing
15 an additional controller if the computing power of existing controllers is adequate.

It is also advantageous to use as inputs those for transmission links of the PCM30 or PCM 24 type of
20 construction. Since these two types of transmission links are in most cases used in existing transit exchanges, corresponding inputs exist. As a result, it is possible in a relatively simple way to apply the method described to transit exchanges already in
25 existence.

According to the invention, a connection can be initiated in a similar manner by a request from another communication network. For this purpose, a program
30 installed on a computer which is connected to the other communication network issues the instruction for setting up the connection. In particular, the "click to dial" feature can thus be implemented if the other communication network is the Internet.

35 In one embodiment, a device in a transit exchange is provided for switching a connection between two subscribers in a communication network. The communication network exhibits a common signaling

channel which is independent of the information channels. Furthermore, this is a communication network with transit exchanges consisting of in each case at least one switching network and associated line trunk groups.

At least one pair of information channels is permanently allocated for information data by at least one connection between two inputs for transmission links at the transit exchange by means of a data line.

Furthermore, the device includes a controller (CTD controller) which is connected to the common signaling channel and which conducts on the common signaling channel a control signal having the content that a connection is present on one information channel of the information channels in each case permanently allocated to one another, which connection is switched through to one subscriber, and a connection is present on the second information channel of the information channels in each case permanently allocated to one another, which connection is switched through to the second subscriber. The controller forwards the terminal signaling of the connection to the first subscriber to the connection to the second subscriber and conversely.

A connection between two subscribers of the communication network can be set up with little expenditure since it is the computing effort for generating the signals of the common signaling channel and the transmission of the terminal signaling by the controller which are produced. The transit exchange in the device according to the invention sees itself as an apparent adjacent transit exchange and the synchronization of the information data and the permanent allocation of the information channels is thus effected with the existing means of the transit exchange.

The device can also advantageously be installed in preexisting transit exchanges.

5 The controller advantageously uses the signaling protocol according to the ITU-T signaling system No. 7.

According to another aspect, the controller advantageously transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one 10 connection to the other one and conversely.

It is also preferable to provide a data line between two inputs for PCM30 transmission links.

15 It is also preferable to provide a data line between two inputs for PCM24 transmission links.

The device can be simplified if the controller (CTD controller) is an existing controller of the transit exchange.

20 According to another aspect of the invention, it is preferable to provide the device in a transit exchange of the EWSD system. The inputs are then connected by two inputs for PCM lines in each case being connected 25 at one line trunk group (LTG-C).

The group processor of the access section of the transit exchange according to the EWSD system can be provided as controller (CTD controller).

30 Advantageously, no external additional controller is then needed since the one existing in the line trunk group has sufficient capacity also to serve as controller of the device proposed here.

35 The controller can be connected to a computer which, in turn, is connected to another communication network in order to initiate the connection by a program on this computer after a request from the other communication network.

The other communication network is advantageously the Internet and the "click to dial" feature is implemented thereby.

5

Figure 2, in contrast to Figure 1, shows by way of example the arrangement of a device according to the invention for switching a first subscriber 7 and a second subscriber 8 in an embodiment with request of 10 the connection by a network server 13, for example of the Internet. The drawing also shows an embodiment in which the device according to the invention is integrated in a transit exchange 3. In a transit exchange 3 including the main modules switching network 1 and line trunk groups 2, two transmission links are 15 connected by a data line 12 and thus at least two information channels 5 are permanently allocated to one another via the data line 12. The associated signaling channels 6 are connected to a controller (CtD controller - click to dial controller) 10. In the embodiment shown, this controller is one of the controllers already existing in the transit exchange 3 for controlling the transit exchange 3 itself. The controller 10 is connected to a network server 13 via a junction line 11. The network server 13 can then be 20 connected to another communication network, for example the Internet. If the network server 13 then receives a request for setting up a connection between the first subscriber 7 and the second subscriber 8, it issues the instruction for this via the junction line 11 to the controller 10. The controller 10 then conducts a control signal to the signaling channel 6 that a 25 connection is present on the information channel 5 connected to the data line 12 which is to be switched through to the first subscriber 7 and which, lastly, is connected via the switching network 1 to the first subscriber. Similarly, a connection is switched from 30 the data line 12 to the second subscriber 8 via the switching network 1 by means of a corresponding control 35

signal on the signaling channel 6. Since the transit exchange 3 sees itself as an adjacent transit exchange via the information channels 5 and the data line 12, the information channels 5 are permanently allocated to
5 one another via the synchronizing devices and methods normally existing between the transit exchanges and transmit the information data. The controller 10 also transmits, on the signaling channel 6, terminal signaling messages coming from the connection to the
10 first subscriber 7 to the connection to the second subscriber 8 and conversely.

Compared with the prior art, the embodiment of the device according to the invention described has the
15 advantage that it can be set up with little expenditure and also subsequently in an existing transit exchange 3. It is only necessary to install the data line 12, to supplement an existing controller by software adaptation to the controller 10 and to set up an
20 interface as junction line 11 to a network server 13. This can also be done by utilizing existing system interfaces to the outside.

Figure 3 shows in a simplified manner a further
25 embodiment according to the invention of the device described above in a transit exchange of the EWSD type.

A transit exchange of the EWSD type consists of a switching network 1 (SN) and at least one line trunk group 2 (LTG). In this case, four are shown, one of
30 which is drawn enlarged and with its modules. The switching network 1 has, for the control function, its own controller, the switch group control 15 (SGC). A line trunk group 2 is built up of line trunk units 17 (DIU,LTU), a group switch 19 and a line interface unit 20. If the line trunk group 2 is designed for PCM30 transmission links as in the embodiment shown, the line trunk group 2 has four line trunk units 17. Each line trunk unit 17 provides a PCM30 access 22 for a
35

transmission link. In each case two of the PCM30
accesses 22 are connected to one another by data lines
12. The group processor 21 is at the same time the
signal processor 10. The line trunk units 17 combine
5 the information channels in a group switch 19 (GS).
Four 2-MBit PCM lines of 32 information channels each
are combined in the group switch 19 to form an 8-MBit
line with 128 channels which are forwarded to the
switching network 1 via the interface of the line
10 interface unit 20. The connection is set up as already
described above. Since the group processor 21 is
connected to the processor of the switching network 1,
the switch group control 15 and the central processor
16 via internal interfaces, it can be used as
15 controller 10. The software must be appropriately
adapted. The instruction for setting up a connection to
the controller 10 can also be transmitted via these
interfaces. Using the embodiment described, it is,
therefore, possible to establish the device according
20 to the invention by means of two data lines 12 and a
software supplement. In particular, subsequent
installation in existing transit exchanges EWSD which
are used in large numbers is also conceivable.

DescriptionMETHOD AND DEVICE FOR SWITCHING A CONNECTION IN A
COMMUNICATION NETWORK

5

CLAIM FOR PRIORITY

This application claims priority to International Application No. PCT/DE00/03328 which was filed in the German language on September 25, 2000.

10

TECHNICAL FIELD OF THE INVENTION

The present invention relates to a method and to a device for switching a connection between two subscribers of a communication network, e.g. a telephone network, and in particular, for switching a connection from an exchange of the communication network, after a request coming from a position outside this communication network, for example from the Internet, using the existing switching functions and signal transmission functions of the communication network.

20

BACKGROUND OF THE INVENTION

A It is known to initiate a connection between two subscribers of a communication network can be initiated by the two subscribers being called separately in each case from a special terminal located outside the communication network, using a computer as automatic operator. As soon as a connection exists to both subscribers and the special terminal, the information signals and the control signals for service indicators, if any, are then transmitted by this terminal from one connection to the other and conversely. Such a switching method is used in telephone networks in call centers. The disadvantageous factor is the relatively complex implementation and the necessary capacity for high performance required from the special terminal.

Such switching of a connection in telephone networks is of particular interest for the function of "click to

dial" out of the Internet. "Click to dial" is an offer in the Internet in which a user of the Internet is provided with the possibility of setting up a connection directly by instruction between two subscriber numbers of the telephone network, the telephone numbers of which are input or retrieved from a database. Both lines involved must be dialed for this and connected to one another. In most cases, one subscriber is the Internet user himself.

If this function is implemented similar to the call switching in call centers, a controller operating as terminal of the communication network ~~must initiate~~ initiates two connections via the communication network ~~here, too,~~ and, as soon as both connections exist, the controller must forward forwards the information data, ~~that is to say.~~ That is, the digitized voice or other data to be transmitted, of one connection via the other one and conversely. To maintain the features offered by the communication system used in the communication network, e.g. the service indicators of the ISDN in the telephone network, for both subscribers of the initially different connections, ~~these, too,~~ must be transferred from one connection to the second one and adapted, if necessary. This creates considerable expenditure since the computer receives the service indicators like a terminal and forwards them again to the second corresponding connection like a terminal. Additional computing effort is produced by the fact that some data have to be converted and adapted. In the ISDN, for example, it is possible to indicate the telephone number of the other subscriber by means of the CLIP feature. Since there are two connections from the point of view of the communication network, the second call must receive from the controller the indicator of the telephone number of the first call instead of that belonging to the controller, in order to guarantee this feature.

It is also desirable to have a capability of integrating the "click to dial" service with the simplest possible means also in existing network nodes in the case where a network operator itself offers this service.

Figure 1 shows in accordance with the prior art the switching of a connection in a communication network by a computer connected to the communication network as terminal which is used as automatic operator 9. The communication network includes transit exchanges 3 and some access exchanges 4. An exchange center can have both functions and can be both transit exchange 3 and access exchange 4. The transit exchanges are connected to one another by means of transmission links which have at least one information channel 5 and at least one separate signaling channel 6. Figure 1 shows the connection between a first subscriber 7 and a second subscriber 8 by the automatic operator 9. The automatic operator 9 first dials both subscribers 7, 8 in two separate connections via two terminal lines 14. In the example shown, both connections initially take the same path. From the access exchange 4 of the automatic operator 9, they first reach the same transit exchange 3. Depending on the subscriber 7, 8 dialed, the connections can also take separate paths through the communication network after the access exchange 4 to which the automatic operator 9 is connected. In the transit exchange 3, the two connections are switched through completely independently as two different ones. This happens by the information channels 5 and signaling channels 6 being conducted via line trunk groups 2 in the transit exchange 3 and being switched through in a switching network 1 according to the control signals in the signaling channels 6.

If the two connections to the first subscriber 7 and second subscriber 8 have been established, the automatic operator 9 connects the two connections.

SUMMARY OF THE INVENTION

In one embodiment of the invention, there is a method for switching The invention is, therefore, based on the object of providing a method and a device by means of which it is possible without elaborate adaptations of the transit exchanges and the modules and facilities used in them to establish a connection between two subscribers of a communication network with a common signaling channel which is independent of the information channels and with transit exchanges having at least one switching occurring network and associated line trunk groups, the switching being effected after a request from outside of the communication network. The method includes, for example, connecting two inputs for transmission links at a transit exchange by a data line and permanently allocating at least one pair of information channels. transmitting a control signal on the common signaling channel such that a connection to the first subscriber is switched through from one information channel of the information channels in each case allocated to one another, and a connection is switched through to the second subscriber from the second information channel of the information channels allocated to one another, and forwarding a terminal signaling of the connection to the first subscriber to the connection to the second subscriber via the common signaling channel, and forwarding a terminal signaling of the connection to the second subscriber to the connection to the first subscriber via the common signaling channel.

In another aspect of the invention, the signaling on the common signaling channel is in accordance with the ITU-T signaling system No. 7.

In another aspect of the invention, the signaling messages of an ISDN User Part (ISUP) are transmitted from the first connection to the second connection and from the second connection to the first connection via the ITU-T signaling system No. 7.

In yet another aspect of the invention, PCM30

transmission links are used as inputs.

In another aspect of the invention, PCM24 transmission links are used as inputs.

In another aspect of the invention, the control signal is transmitted via an existing controller of the transit exchange.

In still another aspect of the invention, a connection after a request from another communication network is initiated by a program installed on a network server which is connected to the other communication network.

In another aspect of the invention, the other communication network is the Internet.

In another embodiment of the invention, there is a device in a transit exchange for switching a connection between two subscribers of a communication network with a common signaling channel which is independent of the information channels and with transit exchanges having at least one switching network and associated line trunk groups, the switching occurring after a request from outside of the communication network. The device includes, for example, at least one connection between two inputs for transmission links at the transit exchange by a data line and permanent allocation of at least one pair of information channels, a controller connected to the common signaling channel and which conducts on the common signaling channel a control signal having content that a connection is present on one information channel of the information channels in each case allocated to one another, which connection is switched through to one subscriber, and a connection is present on the second information channel of the information channels allocated to one another, which connection is switched through to the second subscriber, and which forwards the terminal signaling of the connection to the first subscriber to the connection to the second subscriber and from the second subscriber to the first subscriber.

In another aspect of the invention, the controller

uses the signaling protocol according to the ITU-T signaling system No. 7.

In another aspect of the invention, the controller transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one connection to the other connection.

In yet another aspect of the invention, the inputs are those for PCM30 transmission links.

In another aspect of the invention, the inputs are those for PCM24 transmission links.

In another aspect of the invention, the controller is an existing controller of the transit exchange.

In still another aspect of the invention, the transit exchange is a transit exchange of the EWSD system and the inputs are connected by two accesses for PCM lines in each case being connected at one line trunk group.

In another aspect of the invention, the controller is a group processor of the line trunk group.

In another aspect of the invention, the controller is connected to a network server which is connected to another communication network to initiate the connection by a program on the network server after a request from the other communication network.

In yet another aspect of the invention, the other communication network is the Internet.

BRIEF DESCRIPTION OF THE DRAWINGS

5 In the text which follows, the invention will be explained with reference to the figures in which:

10 Figure 1 shows the connection of two subscribers by a third party according to the prior art, by a computer as terminal of the network.

Figure 2 shows the connection between two subscribers by a third party by means of the device according to the invention.

Figure 3 shows an embodiment according to the invention of the device in a transit exchange EWSD.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

- 5 The invention provides a method and a device by means of which it is possible without elaborate adaptations of the transit exchanges and the modules and facilities used in them to establish a connection between two subscribers of the network from one point of the
10 network after a request from a third party.

~~According to the invention, the object described above is achieved by the features of the independent claims 1 and 9. The dependent claims advantageously develop the basic concept of the invention and provide advantageous embodiments and methods.~~

~~According to the invention, according to claim 1,~~
According to one embodiment of the invention, there is
20 a method for switching a connection between two subscribers in a communication network with a common signaling channel which is independent of the information channels and with transit exchanges consisting of in each case including at least one
25 switching network and associated line trunk groups is provided, the switching being effected after the connection has been requested from a third party.

Initially, two inputs for transmission links at a
30 transit exchange are connected by a data line. This can already been done by means of a signal data line. This also results in a permanent allocation of the information data channels in ~~each case~~ in pairs, for example the voice channels in a telephone network. In
35 networks operating with a synchronous digital hierarchy or a plesiochronous digital hierarchy on the transmission links or generally in the case of multiplex lines, ~~in each case~~ at least one information channel of one input is permanently allocated to an

information channel of the other input of the transmission link via the corresponding timeslot. Naturally, it is also possible, in an ATM network, to achieve a fixed paired information channel allocation
5 by means of such a hardware connection of the inputs of transmission links by utilizing the coding and decoding methods provided by the network since for each transit exchange a transmission link, which, in turn, is connected to the exchange itself, acts in such a manner
10 as if it were connected to an adjacent transit exchange. Thus, the methods already in existence produce a fixed information channel allocation since an unambiguous defined information channel allocation must also exist between transit exchanges.

15 Furthermore, according to still another embodiment of the invention, a control signal is transmitted on the common signaling channel, which has the content that a connection is present on one information channel of the
20 information channels in each case permanently allocated to one another, which connection ~~must be~~ is switched through to the first subscriber and, at the same time, that a connection is present on the second information channel which must be switched through to the second
25 subscriber. As a result, from the point of view of the communication network, two connections are set up, both of which apparently come from the hardware loop, the connection between the two inputs.

30 Finally, the incoming terminal signaling of the connection to the first subscriber in one call are forwarded to the connection to the second subscriber via the common signaling channel and conversely.

35 This can be advantageously carried out with relatively little expenditure even at transit exchanges already existing. Since the junction line is not a terminal and thus does not generate its own terminal signaling, the full extent of the features of the protocol used can already

be secured between the terminals by a simple forwarding of the terminal signaling. If, for example, the call number of one subscriber is transmitted via the signaling and forwarded to the other connection via the common signaling channel, the desired result is obtained without further translation of the signaling. Transmission of the information data does not require any expenditure since the transit exchange in the method according to the invention sees itself as an apparent adjacent transit exchange and, as a result, ensures synchronization of the information channels and transmission of the information data by means of the preexisting methods and devices.

According to claim 2 In one aspect of the invention, the ITU-T signaling system No. 7 is advantageously used for the signaling on the common signaling channel.

According to claim 3 In another aspect of the invention, the signaling messages of the ISDN User Part (ISUP) are advantageously transmitted from the first connection to the second connection and conversely via the ITU-T signaling system No. 7.

The control signals are advantageously preferably generated by an existing controller of the transit exchange and forwarded to the common signaling channel. As a result, the method described can be applied with little expenditure by a corresponding program without needing an additional controller if the computing power of existing controllers is adequate.

Furthermore, it is also advantageous to use as inputs those for transmission links of the PCM30 or PCM 24 type of construction. Since these two types of transmission links are in most cases used in existing transit exchanges, corresponding inputs exist. As a result, it is possible in a relatively simple way to apply the method described to transit exchanges already

in existence.

According to the invention, a connection can be initiated in a similar manner by a request from another 5 communication network. For this purpose, a program installed on a computer which is connected to this the other communication network issues the instruction for setting up the connection. In particular, the "click to dial" feature can thus be implemented if the other 10 communication network is the Internet.

~~According to claim 9 of the invention In one embodiment,~~ a device in a transit exchange is also provided for switching a connection between two 15 subscribers in a communication network. The communication network exhibits a common signaling channel which is independent of the information channels. Furthermore, this is a communication network with transit exchanges consisting of in each case at 20 least one switching network and associated line trunk groups.

At least one pair of information channels is permanently allocated for information data by at least 25 one connection between two inputs for transmission links at the transit exchange by means of a data line.

Furthermore, the device ~~consists of~~ includes a controller (CTD controller) which is connected to the 30 common signaling channel and which conducts on the common signaling channel a control signal having the content that a connection is present on one information channel of the information channels in each case permanently allocated to one another, which connection 35 ~~must be~~ is switched through to one subscriber, and that a connection is present on the second information channel of the information channels in each case permanently allocated to one another, which connection ~~must be~~ is switched through to the second subscriber.

The controller forwards the terminal signaling of the connection to the first subscriber to the connection to the second subscriber and conversely.

5 ~~Advantageously,~~ A connection between two subscribers of the communication network can be set up with only little expenditure since it is only the computing effort for generating the signals of the common signaling channel and the transmission of the terminal 10 signaling by the controller which must be ~~are~~ produced. The transit exchange in the device according to the invention sees itself as an apparent adjacent transit exchange and the synchronization of the information data and the permanent allocation of the information 15 channels is thus effected with the existing means of the transit exchange.

The device can also advantageously be installed in preexisting transit exchanges.

20 The controller advantageously uses the signaling protocol according to the ITU-T signaling system No. 7.

According to ~~claim 11~~ another aspect, the controller 25 advantageously transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one connection to the other one and conversely.

It is also advantageous preferable to provide a data 30 line between two inputs for PCM30 transmission links.

It is also advantageous preferable to provide a data line between two inputs for PCM24 transmission links.

The device can be simplified if the controller (CTD 35 controller) is an existing controller of the transit exchange.

According to ~~claim 15~~, according to another aspect of the invention, it is advantageous preferable to provide

the device in a transit exchange of the EWSD system. The inputs are then connected by two inputs for PCM lines in each case being connected at one line trunk group (LTG-C).

5

The group processor of the access section of the transit exchange according to the EWSD system can be provided as controller (CTD controller). Advantageously, no external additional controller is 10 then needed since the one existing in the line trunk group has sufficient capacity also to serve as controller of the device proposed here.

15 The controller can be connected to a computer which, in turn, is connected to another communication network in order to initiate the connection by a program on this computer after a request from the other communication network.

20 The other communication network is advantageously the Internet and the "click to dial" feature is implemented thereby.

25 ~~In the text which follows, the invention will be explained with reference to figures 1 and 2, in which:~~

~~figure 1 shows in a diagram the connection of two subscribers by a third party according to the prior art, by a computer as terminal of the network.~~

30

~~figure 2 shows in a diagram the connection between two subscribers by a third party by means of the device according to the invention,~~

35

~~figure 3 shows in a greatly simplified manner an embodiment according to the invention of the device in a transit exchange EWSD.~~

~~Figure 1 diagrammatically shows in accordance with the~~

prior art the switching of a connection in a communication network by a computer connected to the communication network as terminal which is used as automatic operator 9. The communication network 5 consists of transit exchanges 3 and some access exchanges 4. An exchange center can have both functions and can be both transit exchange 3 and access exchange 4. The transit exchanges are connected to one another by means of transmission links which have at least one 10 information channel 5 and at least one separate signaling channel 6. Figure 1 shows the connection between a first subscriber 7 and a second subscriber 8 by the automatic operator 9. The automatic operator 9 first dials both subscribers 7, 8 in two separate 15 connections via two terminal lines 14. In the example shown, both connections initially take the same path. From the access exchange 4 of the automatic operator 9, they first reach the same transit exchange 3. Depending on the subscriber 7, 8 dialed, the connections can also 20 take separate paths through the communication network after the access exchange 4 to which the automatic operator 9 is connected. In the transit exchange 3, the two connections are switched through completely independently as two different ones. This happens by 25 the information channels 5 and signaling channels 6 being conducted via line trunk groups 2 in the transit exchange 3 and being switched through in a switching network 1 according to the control signals in the signaling channels 6.

30 If the two connections to the first subscriber 7 and second subscriber 8 have been established, the automatic operator 9 connects the two connections.

35 Figure 2, in contrast to Figure 1, shows by way of example the arrangement of a device according to the invention for switching a first subscriber 7 and a second subscriber 8 in an embodiment with request of the connection by a network server 13, for example of

the Internet. The drawing also shows an embodiment in which the device according to the invention is integrated in a transit exchange 3. In a transit exchange 3 consisting of including the main modules 5 switching network 1 and line trunk groups 2, two transmission links are connected by a data line 12 and thus at least two information channels 5 are permanently allocated to one another via the data line 12. The associated signaling channels 6 are connected 10 to a controller (CtD controller - click to dial controller) 10. In the embodiment shown, this controller is one of the controllers already existing in the transit exchange 3 for controlling the transit exchange 3 itself. The controller 10 is connected to a 15 network server 13 via a junction line 11. The network server 13 can then be connected to another communication network, for example the Internet. If the network server 13 then receives a request for setting up a connection between the first subscriber 7 and the 20 second subscriber 8, it issues the instruction for this via the junction line 11 to the controller 10. The controller 10 then conducts a control signal to the signaling channel 6 that a connection is present on the information channel 5 connected to the data line 12 25 which is to be switched through to the first subscriber 7 and which, lastly, is connected via the switching network 1 to the first subscriber. Similarly, a connection is switched from the data line 12 to the second subscriber 8 via the switching network 1 by means of a corresponding control signal on the 30 signaling channel 6. Since the transit exchange 3 sees itself as an adjacent transit exchange via the information channels 5 and the data line 12, the information channels 5 are permanently allocated to one 35 another via the synchronizing devices and methods normally existing between the transit exchanges and transmit the information data. The controller 10 also transmits, on the signaling channel 6, terminal signaling messages coming from the connection to the

first subscriber 7 to the connection to the second subscriber 8 and conversely.

Compared with the prior art, the embodiment of the device according to the invention described has the advantage that it can be set up with little expenditure and also subsequently in an existing transit exchange 3. It is only necessary to install the data line 12, to supplement an existing controller by software adaptation to the controller 10 and to set up an interface as junction line 11 to a network server 13. This can also be done by utilizing existing system interfaces to the outside.

Figure 3 shows in a simplified manner a further embodiment according to the invention of the device described above in a transit exchange of the EWSD type.

A transit exchange of the EWSD type consists of a switching network 1 (SN) and at least one line trunk group 2 (LTG). In this case, four are shown, one of which is drawn enlarged and with its modules. The switching network 1 has, for the control function, its own controller, the switch group control 15 (SGC). A line trunk group 2 is built up of line trunk units 17 (DIU,LTU), a group switch 19 and a line interface unit 20. If the line trunk group 2 is designed for PCM30 transmission links as in the embodiment shown, the line trunk group 2 has four line trunk units 17. Each line trunk unit 17 provides a PCM30 access 22 for a transmission link. In each case two of the PCM30 accesses 22 are connected to one another by data lines 12. The group processor 21 is at the same time the signal processor 10. The line trunk units 17 combine the information channels in a group switch 19 (GS). Four 2-MBit PCM lines of 32 information channels each are combined in the group switch 19 to form an 8-MBit line with 128 channels which are forwarded to the switching network 1 via the interface of the line

interface unit 20. The connection is set up as already described above. Since the group processor 21 is connected to the processor of the switching network 1, the switch group control 15 and the central processor 16 via internal interfaces, it can be used as controller 10. The software must be appropriately adapted. The instruction for setting up a connection to the controller 10 can also be transmitted via these interfaces. Using the embodiment described, it is, therefore, possible to establish the device according to the invention by means of two data lines 12 and a software supplement. In particular, subsequent installation in existing transit exchanges EWSD which are used in large numbers is also conceivable.

3/PRTS

10/089318

JC15 Rec'd PCT/PTO 29 MAR 2002

Description

Method and device for switching a connection in a communication network

5

The present invention relates to a method and to a device for switching a connection between two subscribers of a communication network, e.g. a telephone network, from an exchange of the 10 communication network, after a request coming from a position outside this communication network, for example from the Internet, using the existing switching functions and signal transmission functions of the communication network.

15

It is known to initiate a connection between two subscribers of a communication network by the two subscribers being called separately in each case from a special terminal located outside the communication 20 network, a computer as automatic operator. As soon as a connection exists to both subscribers and the special terminal, the information signals and the control signals for service indicators, if any, are then transmitted by this terminal from one connection to the 25 other and conversely. Such a switching method is used in telephone networks in call centers. The disadvantageous factor is the relatively complex implementation and the necessary capacity for high performance required from the special terminal.

30

Such switching of a connection in telephone networks is of particular interest for the function of "click to dial" out of the Internet. "Click to dial" is an offer in the Internet in which a user of the Internet is 35 provided with the possibility of setting up a connection directly by instruction between two subscriber numbers of the telephone network, the telephone numbers of which are input or retrieved from a database. Both lines involved must be dialed for this

and connected to one another. In most cases, one subscriber is the Internet user himself.

If this function is implemented similar to the call switching in call centers, a controller operating as terminal of the communication network must initiate two connections via the communication network here, too, and, as soon as both connections exist, the controller must forward the information data, that is to say the digitized voice or other data to be transmitted, of one connection via the other one and conversely. To maintain the features offered by the communication system used in the communication network, e.g. the service indicators of the ISDN in the telephone network, for both subscribers of the initially different connections, these, too, must be transferred from one connection to the second one and adapted, if necessary. This creates considerable expenditure since the computer receives the service indicators like a terminal and forwards them again to the second corresponding connection like a terminal. Additional computing effort is produced by the fact that some data have to be converted and adapted. In the ISDN, for example, it is possible to indicate the telephone number of the other subscriber by means of the CLIP feature. Since there are two connections from the point of view of the communication network, the second call must receive from the controller the indicator of the telephone number of the first call instead of that belonging to the controller, in order to guarantee this feature.

It is also desirable to have a capability of integrating the "click to dial" service with the simplest possible means also in existing network nodes in the case where a network operator itself offers this service.

The invention is, therefore, based on the object of

providing a method and a device by means of which it is possible without elaborate adaptations of the transit exchanges and the modules and facilities used in them to establish a connection between two subscribers of
5 the network from one point of the network after a request from a third party.

According to the invention, the object described above is achieved by the features of the independent claims 1
10 and 9. The dependent claims advantageously develop the basic concept of the invention and provide advantageous embodiments and methods.

According to the invention, according to claim 1, a
15 method for switching a connection between two subscribers in a communication network with a common signaling channel which is independent of the information channels and with transit exchanges consisting of in each case at least one switching network and associated line trunk groups is provided,
20 the switching being effected after the connection has been requested from a third party.

Initially, two inputs for transmission links at a
25 transit exchange are connected by a data line. This can already been done by means of a signal data line. This also results in a permanent allocation of the information data channels in each case in pairs, for example the voice channels in a telephone network. In
30 networks operating with a synchronous digital hierarchy or a plesiochronous digital hierarchy on the transmission links or generally in the case of multiplex lines, in each case at least one information channel of one input is permanently allocated to an
35 information channel of the other input of the transmission link via the corresponding timeslot. Naturally, it is also possible, in an ATM network, to achieve a fixed paired information channel allocation by means of such a hardware connection of the inputs of

transmission links by utilizing the coding and decoding methods provided by the network since for each transit exchange a transmission link, which, in turn, is connected to the exchange itself, acts in such a manner

5 as if it were connected to an adjacent transit exchange. Thus, the methods already in existence produce a fixed information channel allocation since an unambiguous defined information channel allocation must also exist between transit exchanges.

10

Furthermore, according to the invention, a control signal is transmitted on the common signaling channel, which has the content that a connection is present on one information channel of the information channels in each case permanently allocated to one another, which connection must be switched through to the first subscriber and, at the same time, that a connection is present on the second information channel which must be switched through to the second subscriber. As a result,

15 from the point of view of the communication network, two connections are set up, both of which apparently come from the hardware loop, the connection between the two inputs.

25 Finally, the incoming terminal signaling of the connection to the first subscriber in one call are forwarded to the connection to the second subscriber via the common signaling channel and conversely.

30 This can be advantageously carried out with relatively little expenditure even at transit exchanges already existing. Since the junction line is not a terminal and thus does not generate its own terminal signaling, the full extent of the features of the protocol used can already

35 be secured between the terminals by a simple forwarding of the terminal signaling. If, for example, the call number of one subscriber is transmitted via the signaling and forwarded to the other connection via the common signaling channel, the desired result is

- obtained without further translation of the signaling. Transmission of the information data does not require any expenditure since the transit exchange in the method according to the invention sees itself as an
5 apparent adjacent transit exchange and, as a result, ensures synchronization of the information channels and transmission of the information data by means of the preexisting methods and devices.
- 10 According to claim 2, the ITU-T signaling system No. 7 is advantageously used for the signaling on the common signaling channel.
- 15 According to claim 3, the signaling messages of the ISDN User Part (ISUP) are advantageously transmitted from the first connection to the second connection and conversely via the ITU-T signaling system No. 7.
- 20 The control signals are advantageously generated by an existing controller of the transit exchange and forwarded to the common signaling channel. As a result, the method described can be applied with little expenditure by a corresponding program without needing an additional controller if the computing power of
25 existing controllers is adequate.
- Furthermore, it is advantageous to use as inputs those for transmission links of the PCM30 or PCM 24 type of construction. Since these two types of transmission
30 links are in most cases used in existing transit exchanges, corresponding inputs exist. As a result, it is possible in a relatively simple way to apply the method described to transit exchanges already in existence.
35 According to the invention, a connection can be initiated in manner by a request from another communication network. For this purpose, a program installed on a computer which is connected to this

other communication network issues the instruction for setting up the connection. In particular, the "click to dial" feature can thus be implemented if the other communication network is the Internet.

5

According to claim 9 of the invention, a device in a transit exchange is also provided for switching a connection between two subscribers in a communication network. The communication network exhibits a common 10 signaling channel which is independent of the information channels. Furthermore, this is a communication network with transit exchanges consisting of in each case at least one switching network and associated line trunk groups.

15

At least one pair of information channels is permanently allocated for information data by at least one connection between two inputs for transmission links at the transit exchange by means of a data line.

20

Furthermore, the device consists of a controller (CTD controller) which is connected to the common signaling channel and which conducts on the common signaling channel a control signal having the content that a 25 connection is present on one information channel of the information channels in each case permanently allocated to one another, which connection must be switched through to one subscriber, and that a connection is present on the second information channel of the 30 information channels in each case permanently allocated to one another, which connection must be switched through to the second subscriber. The controller forwards the terminal signaling of the connection to the first subscriber to the connection to the second 35 subscriber and conversely.

Advantageously, a connection between two subscribers of the communication network can be set up with only little expenditure since it is only the computing

effort for generating the signals of the common signaling channel and the transmission of the terminal signaling by the controller which must be produced. The transit exchange in the device according to the
5 invention sees itself as an apparent adjacent transit exchange and the synchronization of the information data and the permanent allocation of the information channels is thus effected with the existing means of the transit exchange.

10

The device can also advantageously be installed in preexisting transit exchanges.

15 The controller advantageously uses the signaling protocol according to the ITU-T signaling system No. 7.

According to claim 11, the controller advantageously transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one connection to the other one
20 and conversely.

It is also advantageous to provide a data line between two inputs for PCM30 transmission links.

25 It is also advantageous to provide a data line between two inputs for PCM24 transmission links.

30 The device can be simplified if the controller (CTD controller) is an existing controller of the transit exchange.

According to claim 15, according to the invention, it is advantageous to provide the device in a transit exchange of the EWSD system. The inputs are then
35 connected by two inputs for PCM lines in each case being connected at one line trunk group (LTG-C).

The group processor of the access section of the transit exchange according to the EWSD system can be

provided as controller (CTD controller). Advantageously, no external additional controller is then needed since the one existing in the line trunk group has sufficient capacity also to serve as 5 controller of the device proposed here.

The controller can be connected to a computer which, in turn, is connected to another communication network in order to initiate the connection by a program on this 10 computer after a request from the other communication network.

The other communication network is advantageously the Internet and the "click to dial" feature is implemented 15 thereby.

In the text which follows, the invention will be explained with reference to figures 1 and 2, in which:

20 figure 1 shows in a diagram the connection of two subscribers by a third party according to the prior art, by a computer as terminal of the network.

25 figure 2 shows in a diagram the connection between two subscribers by a third party by means of the device according to the invention,

30 figure 3 shows in a greatly simplified manner an embodiment according to the invention of the device in a transit exchange EWSD.

Figure 1 diagrammatically shows in accordance with the prior art the switching of a connection in a 35 communication network by a computer connected to the communication network as terminal which is used as automatic operator 9. The communication network consists of transit exchanges 3 and some access exchanges 4. An exchange center can have both functions

and can be both transit exchange 3 and access exchange 4. The transit exchanges are connected to one another by means of transmission links which have at least one information channel 5 and at least one separate
5 signaling channel 6. Figure 1 shows the connection between a first subscriber 7 and a second subscriber 8 by the automatic operator 9. The automatic operator 9 first dials both subscribers 7, 8 in two separate connections via two terminal lines 14. In the example
10 shown, both connections initially take the same path. From the access exchange 4 of the automatic operator 9, they first reach the same transit exchange 3. Depending on the subscriber 7, 8 dialed, the connections can also take separate paths through the communication network
15 after the access exchange 4 to which the automatic operator 9 is connected. In the transit exchange 3, the two connections are switched through completely independently as two different ones. This happens by the information channels 5 and signaling channels 6
20 being conducted via line trunk groups 2 in the transit exchange 3 and being switched through in a switching network 1 according to the control signals in the signaling channels 6.
25 If the two connections to the first subscriber 7 and second subscriber 8 have been established, the automatic operator 9 connects the two connections.

Figure 2, in contrast, shows by way of example the
30 arrangement of a device according to the invention for switching a first subscriber 7 and a second subscriber 8 in an embodiment with request of the connection by a network server 13, for example of the Internet. The drawing also shows an embodiment in which the device
35 according to the invention is integrated in a transit exchange 3. In a transit exchange 3 consisting of the main modules switching network 1 and line trunk groups 2, two transmission links are connected by a data line 12 and thus at least two information channels 5 are

permanently allocated to one another via the data line 12. The associated signaling channels 6 are connected to a controller (CtD controller - click to dial controller) 10. In the embodiment shown, this 5 controller is one of the controllers already existing in the transit exchange 3 for controlling the transit exchange 3 itself. The controller 10 is connected to a network server 13 via a junction line 11. The network server 13 can then be connected to another 10 communication network, for example the Internet. If the network server 13 then receives a request for setting up a connection between the first subscriber 7 and the second subscriber 8, it issues the instruction for this 15 via the junction line 11 to the controller 10. The controller 10 then conducts a control signal to the signaling channel 6 that a connection is present on the information channel 5 connected to the data line 12 which is to be switched through to the first subscriber 7 and which, lastly, is connected via the switching 20 network 1 to the first subscriber. Similarly, a connection is switched from the data line 12 to the second subscriber 8 via the switching network 1 by means of a corresponding control signal on the signaling channel 6. Since the transit exchange 3 sees 25 itself as an adjacent transit exchange via the information channels 5 and the data line 12, the information channels 5 are permanently allocated to one another via the synchronizing devices and methods normally existing between the transit exchanges and 30 transmit the information data. The controller 10 also transmits, on the signaling channel 6, terminal signaling messages coming from the connection to the first subscriber 7 to the connection to the second subscriber 8 and conversely.

35

Compared with the prior art, the embodiment of the device according to the invention described has the advantage that it can be set up with little expenditure and also subsequently in an existing transit exchange

3. It is only necessary to install the data line 12, to supplement an existing controller by software adaptation to the controller 10 and to set up an interface as junction line 11 to a network server 13.
- 5 This can also be done by utilizing existing system interfaces to the outside.

Figure 3 shows in a simplified manner a further embodiment according to the invention of the device
10 described above in a transit exchange of the EWSD type.

A transit exchange of the EWSD type consists of a switching network 1 (SN) and at least one line trunk group 2 (LTG). In this case, four are shown, one of
15 which is drawn enlarged and with its modules. The switching network 1 has, for the control function, its own controller, the switch group control 15 (SGC). A line trunk group 2 is built up of line trunk units 17 (DIU,LTU), a group switch 19 and a line interface unit
20. If the line trunk group 2 is designed for PCM30 transmission links as in the embodiment shown, the line trunk group 2 has four line trunk units 17. Each line trunk unit 17 provides a PCM30 access 22 for a transmission link. In each case two of the PCM30
25 accesses 22 are connected to one another by data lines 12. The group processor 21 is at the same time the signal processor 10. The line trunk units 17 combine the information channels in a group switch 19 (GS). Four 2-MBit PCM lines of 32 information channels each
30 are combined in the group switch 19 to form an 8-MBit line with 128 channels which are forwarded to the switching network 1 via the interface of the line interface unit 20. The connection is set up as already described above. Since the group processor 21 is
35 connected to the processor of the switching network 1, the switch group control 15 and the central processor 16 via internal interfaces, it can be used as controller 10. The software must be appropriately adapted. The instruction for setting up a connection to

the controller 10 can also be transmitted via these interfaces. Using the embodiment described, it is, therefore, possible to establish the device according to the invention by means of two data lines 12 and a
5 software supplement. In particular, subsequent installation in existing transit exchanges EWSD which are used in large numbers is also conceivable.

Patent claims

1. A method for switching a connection between two subscribers (7, 8) of a communication network with a common signaling channel (6) which is independent of the information channels (5, 5a, 5b) and with transit exchanges (3) consisting of in each case at least one switching network (1) and associated line trunk groups (2), the switching being effected after a request from outside this communication network, comprising the following steps
 - a) connecting two inputs for transmission links at a transit exchange (3) by a data line (12) and permanently allocating at least one pair of information channels (5a, 5b).
 - b) Transmitting a control signal on the common signaling channel (6) which has the following effect:
that a connection to the first subscriber (7) is switched through from one information channel (5a) of the information channels (5a, 5b) in each case permanently allocated to one another, and
that a connection is switched through to the second subscriber (8) from the second information channel (5b) of the information channels (5a, 5b) permanently allocated to one another.
 - c) Forwarding the terminal signaling of the connection to the first subscriber to the connection to the second subscriber via the common signaling channel (6) and conversely.
2. The method as claimed in claim 1, characterized in that the signaling on the common signaling channel (6) is effected in accordance with the ITU-T signaling system No. 7.
3. The method as claimed in claim 2, characterized in that

the signaling messages of the ISDN User Part (ISUP) are transmitted from the first connection to the second connection and conversely via the ITU-T signaling system No. 7.

4. The method as claimed in one of claims 1 to 3, characterized in that, as inputs, those for PCM30 transmission links are used.

5. The method as claimed in one of claims 1 to 3, characterized in that, as inputs, those for PCM24 transmission links are used.

6. The method as claimed in one of claims 1 to 5, characterized in that the control signal is transmitted via an existing controller (21) of the transit exchange.

7. The method as claimed in one of the preceding claims, characterized in that a connection after a request from another communication network is initiated by a program installed on a network server (13) which is connected to this other communication network.

8. The method as claimed in claim 7, characterized in that the other communication network is the Internet.

9. A device in a transit exchange (3) for switching a connection between two subscribers (7, 8) of a communication network with a common signaling channel (6) which is independent of the information channels (5, 5a, 5b) and with transit exchanges (3) consisting of in each case at least one switching network (1) and associated line trunk groups (17), the switching being effected after a request from outside the communication network, comprising

a) at least one connection between two inputs for transmission links at the transit exchange by means of a data line (12) and permanent allocation of at least

one pair of information channels (5a, 5b).

b) A controller (10) (CtD controller) which is connected to the common signaling channel (6) and which conducts on the common signaling channel (6) a control signal having the content that a connection is present on one information channel (5a) of the information channels (5a, 5b) in each case permanently allocated to one another, which connection must be switched through to one subscriber (7), and that a connection is present on the second information channel (5b) of the information channels (5a, 5b) permanently allocated to one another, which connection must be switched through to the second subscriber (8), and which forwards the terminal signaling of the connection to the first subscriber (7) to the connection to the second subscriber (8) and conversely.

10. The device as claimed in claim 9, characterized in that the controller (10) uses the signaling protocol according to the ITU-T signaling system No. 7.

11. The device as claimed in claim 10, characterized in that the controller (10) transmits the end-to-end signaling messages of the ISDN User Part (ISUP) from one connection to the other one and conversely.

12. The device as claimed in one of claims 9 to 11, characterized in that the inputs are those for PCM30 transmission links.

13. The device as claimed in one of claims 9 to 11, characterized in that the inputs are those for PCM24 transmission links.

14. The device as claimed in one of claims 9 to 13, characterized in that the controller (10) (CTD controller) is an existing controller of the transit exchange (3).

15. The device as claimed in one of claims 12 to 14, characterized in that the transit exchange (3) is a transit exchange (3) of the EWS system and the inputs are connected by two accesses for PCM lines (22) in each case being connected at one line trunk group (2) (LTG).

16. The device as claimed in claim 15, characterized in that the controller (10) (CTD controller) is the group processor of the line trunk group (2).

17. The device as claimed in one of claims 9 to 16, characterized in that the controller (10) is connected to a network server (13) which, in turn, is connected to another communication network in order to initiate the connection by a program on this network server (13) after a request from the other communication network.

18. The device as claimed in claim 17, characterized in that the other communication network is the Internet.

Abstract

Method and device for switching a connection in a communication network

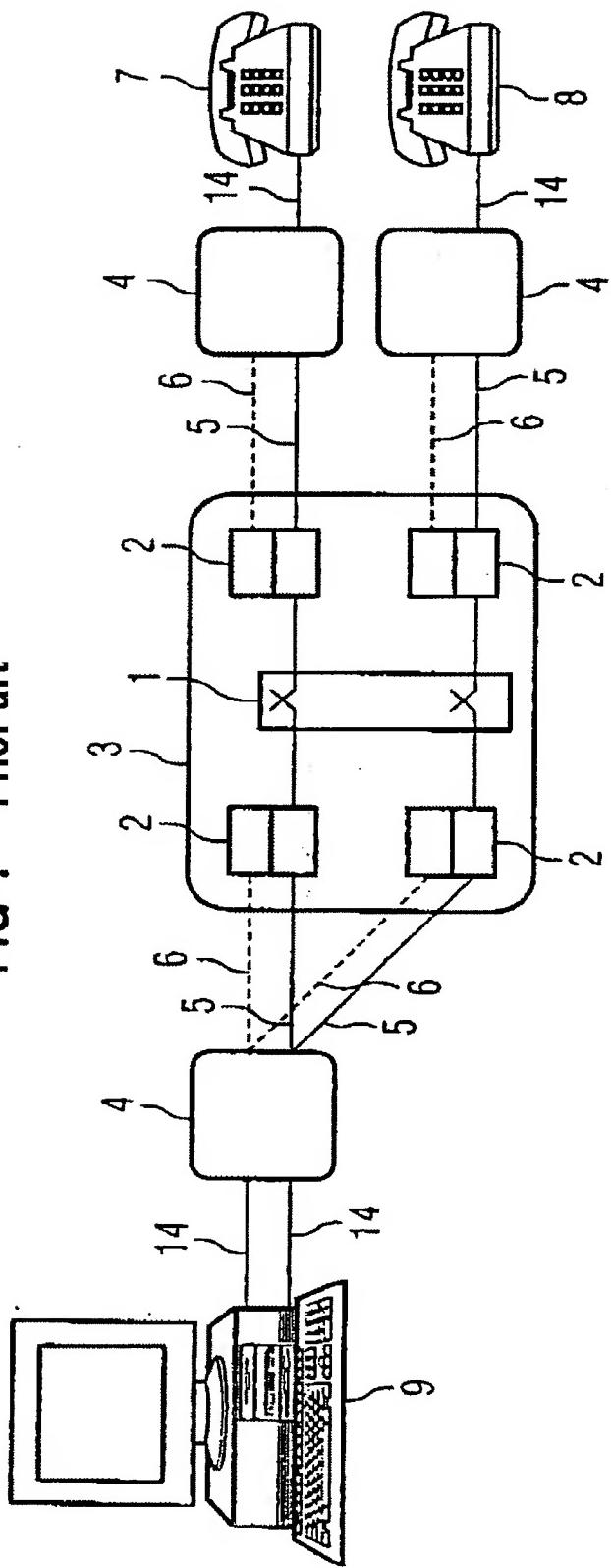
In a communication network with a common signaling channel which is independent of the information channels (5a, 5b, 5), two inputs for transmission links at a transit exchange (3) are connected by a data line (12). A controller (10), by means of a control signal on the common signaling channel (6), causes a connection to be switched through from one input to the first subscriber (7) and from the second input to the second subscriber (8). The terminal signaling of the connections to the subscribers (7, 8) is transmitted alternately.

Figure 2

10/089318

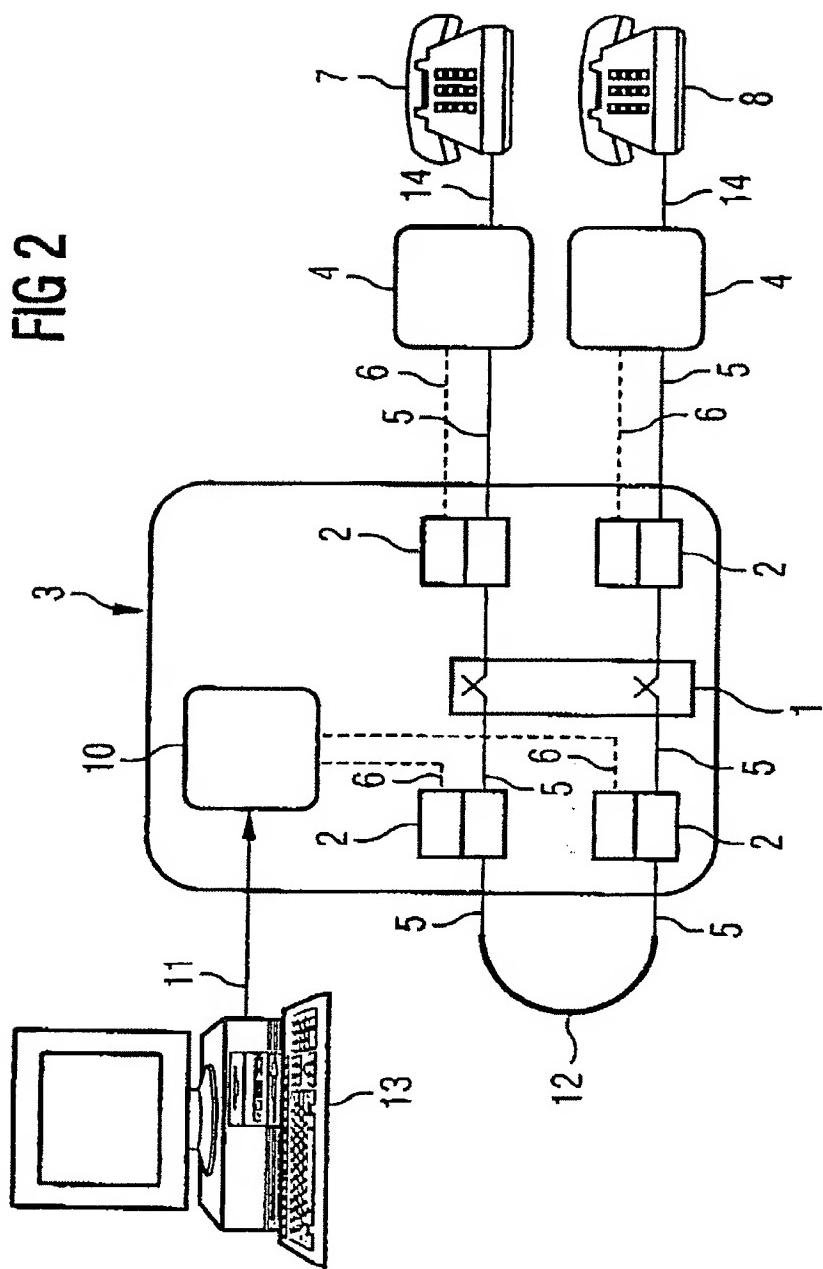
1/3

FIG 1 Prior art



2/3

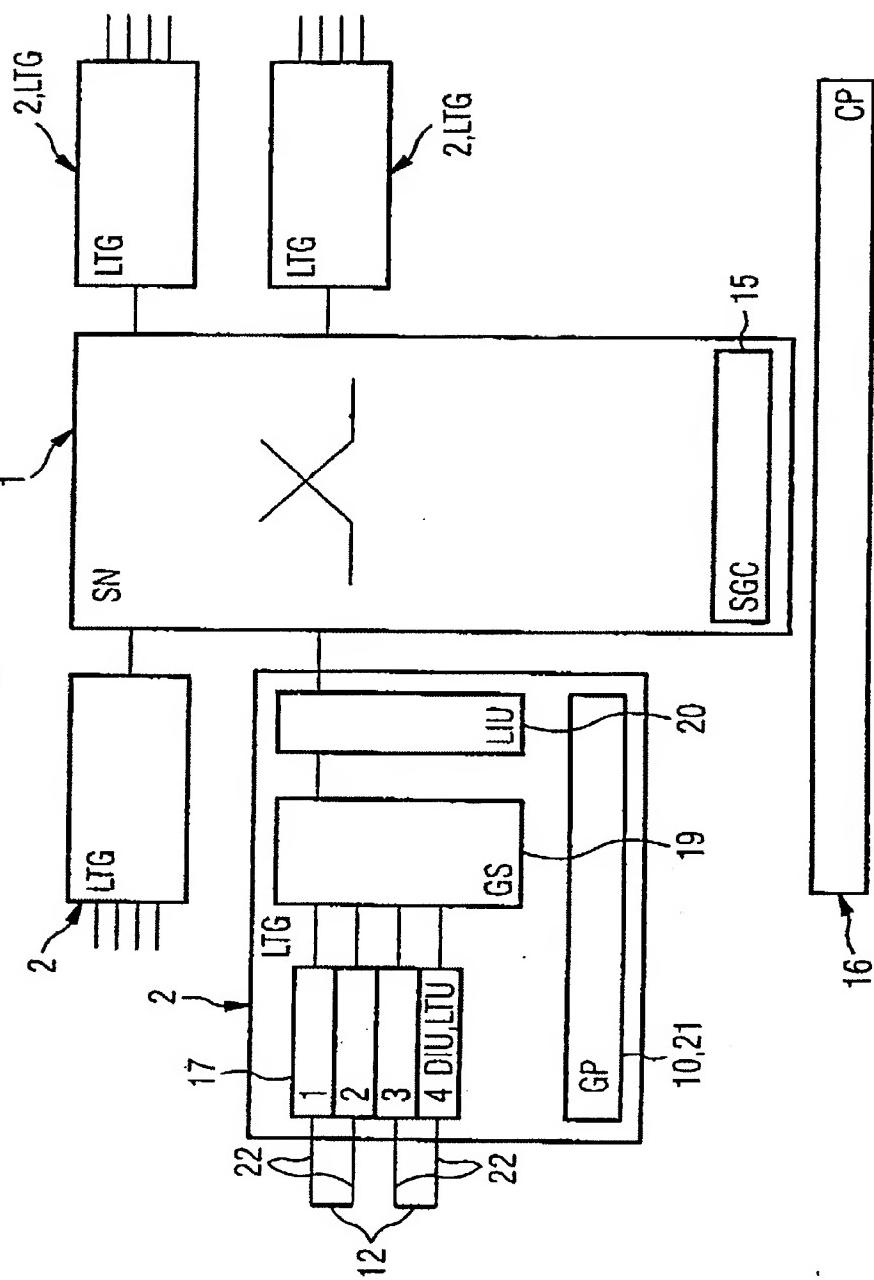
FIG 2



10/089318

3/3

FIG 3



Declaration and Power of Attorney For Patent Application
Erklärung Für Patentanmeldungen Mit Vollmacht
 German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit
an Eides Statt:

dass mein Wohnsitz, meine Postanschrift, und meine
Staatsangehörigkeit den im Nachstehenden nach
meinem Namen aufgeführten Angaben entsprechen,

dass ich, nach bestem Wissen der ursprüngliche, erste
und alleinige Erfinder (falls nachstehend nur ein Name
angegeben ist) oder ein ursprünglicher, erster und
Miterfinder (falls nachstehend mehrere Namen
aufgeführt sind) des Gegenstandes bin, für den dieser
Antrag gestellt wird und für den ein Patent beantragt
wird für die Erfindung mit dem Titel:

**Verfahren und Vorrichtung zur
Vermittlung einer Verbindung in einem
Kommunikationsnetz**

deren Beschreibung

(zutreffendes ankreuzen)

hier beigelegt ist.

am 25.09.2000 als

PCT internationale Anmeldung

PCT Anmeldungsnummer PCT/DE00/03328

eingereicht wurde und am _____

abgeändert wurde (falls tatsächlich abgeändert).

Ich bestätige hiermit, dass ich den Inhalt der obigen
Patentanmeldung einschliesslich der Ansprüche
durchgesehen und verstanden habe, die eventuell
durch einen Zusatzantrag wie oben erwähnt abgeän-
dert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwel-
cher Informationen, die für die Prüfung der vorliegen-
den Anmeldung in Einklang mit Absatz 37, Bundes-
gesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind,
an.

Ich beanspruche hiermit ausländische Prioritätsvorteile
gemäß Abschnitt 35 der Zivilprozeßordnung der
Vereinigten Staaten, Paragraph 119 aller unten ange-
gebenen Auslandsanmeldungen für ein Patent oder
eine Erfindersurkunde, und habe auch alle Auslands-
anmeldungen für ein Patent oder eine Erfindersurkun-
de nachstehend gekennzeichnet, die ein Anmelde-
datum haben, das vor dem Anmeldedatum der
Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are
as stated below next to my name,

I believe I am the original, first and sole inventor (if only
one name is listed below) or an original, first and joint
inventor (if plural names are listed below) of the
subject matter which is claimed and for which a patent
is sought on the invention entitled

**Method and device for switching
connections in a communication network**

the specification of which

(check one)

is attached hereto.

was filed on 25.09.2000 as

PCT international application

PCT Application No. PCT/DE00/03328

and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the
contents of the above identified specification, including
the claims as amended by any amendment referred to
above.

I acknowledge the duty to disclose information which is
material to the examination of this application in
accordance with Title 37, Code of Federal Regulations,
§1.56(a).

I hereby claim foreign priority benefits under Title 35,
United States Code, §119 of any foreign application(s)
for patent or inventor's certificate listed below and have
also identified below any foreign application for patent
or inventor's certificate having a filing date before that
of the application on which priority is claimed:

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

19946658.0	DE	29.09.1999	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day Month Year Filed)	Yes	No
(Nummer)	(Land)	(Tag Monat Jahr eingereicht)	Ja	Nein
(Number)	(Country)	(Day Month Year Filed)	<input type="checkbox"/>	<input type="checkbox"/>
(Nummer)	(Land)	(Tag Monat Jahr eingereicht)	Yes	No
(Number)	(Country)	(Day Month Year Filed)	<input type="checkbox"/>	<input type="checkbox"/>
(Nummer)	(Land)	(Tag Monat Jahr eingereicht)	Yes	No

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozeßordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozeßordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/DE00/03328 (Application Serial No.) (Anmeldeseriennummer)	25.09.2000 (Filing Date D, M, Y) (Anmeldedatum T, M, J)	anhängig (Status) (patentiert, anhängig, aufgegeben)	pending (Status) (patented, pending, abandoned)
(Application Serial No.) (Anmeldeseriennummer)	(Filing Date D, M, Y) (Anmeldedatum T, M, J)	(Status) (patentiert, anhängig, aufgegeben)	(Status) (patented, pending, abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozeßordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden können, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: (Name und Registrationsnummer anführen)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

Customer No. 25227

And I hereby appoint

Telefongespräche bitte richten an:
(Name und Telefonnummer)

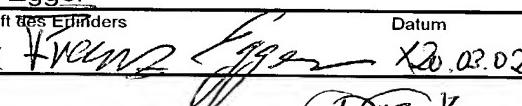
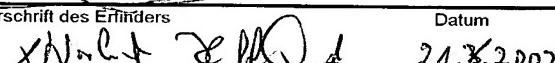
Direct Telephone Calls to: (name and telephone number)

Ext. _____

Postanschrift:

Send Correspondence to:

Morrison and Foerster LLP
2000 Pennsylvania Ave., NW 20006-1888 Washington, DC
Telephone: (001) 202 887 1500 and Facsimile (001) 202 887 0763
or
Customer No. 25227

Voller Name des einzigen oder ursprünglichen Erfinders:		Full name of sole or first inventor:	
<u>Franz Egger</u>		<u>Franz Egger</u>	
Unterschrift des Erfinders	Datum	Inventor's signature	Date
 X Franz Egger X 20.02.02			
Wohnsitz	Residence		
<u>Muenchen, DEUTSCHLAND</u>	<u>Muenchen, GERMANY</u>		
Staatsangehörigkeit	Citizenship		
DE	DE		
Postanschrift	Post Office Address		
Seybothstr.25	Seybothstr.25		
81545 Muenchen	81545 Muenchen		
Voller Name des zweiten Miterfinders (falls zutreffend):		Full name of second joint inventor, if any:	
<u>Norbert Huffschmid</u>		<u>Norbert Huffschmid</u>	
Unterschrift des Erfinders	Datum	Second Inventor's signature	Date
 X Norbert Huffschmid X 21.8.2002			
Wohnsitz	Residence		
<u>Germering, DEUTSCHLAND</u>	<u>Germering, GERMANY</u>		
Staatsangehörigkeit	Citizenship		
DE	DE		
Postanschrift	Post Office Address		
Salzstr. 9	Salzstr. 9		
82110 Germering	82110 Germering		

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).